

Yakima Tributary Access & Habitat Program

NYCD Summary of Accomplishments

2001-2008

1. Diversion 14, 2003 – Ahtanum Creek

The early action project involved fixing diversion structure/barrier, screening irrigation diversion withdrawal/setback flood control berm and establish riparian habitat. NYCD built 9 vortex rock weir structures to provide irrigation diversion control and create passage at all flow levels. Project included construction and implementation of a 10 cfs rotary drum fish screen, where no screen existed prior. Project also included set back of an 8 foot push up berm from 0 ft. from stream edge to 75 ft., for the purposes of establishing floodplain and riparian habitat where none existed within the 750 ft. stream reach. Native species were planted throughout the entire riparian habitat areas upstream and downstream.

Improvements:

10 cfs screened

4243.62 AF screened

750 ft instream rock weirs (9 weirs)

1.3 acres planted

0.14 RM planted (750 ft)

2. Pellicer Project, 2004 – Cowlitz Creek

The project involved removal of a 2.5 ft. barrier, instream and riparian habitat improvements, and increased channel/flood flow carrying capacity. NYCD removed the old bridge/abandoned irrigation diversion structure and replaced it with 5 vortex rock weirs, stream banks were pulled back, erosion control matting was placed and the stream bank was revegetated with native plants. Bridge access was replaced with a larger span bridge that met county flood specifications.

Improvements:

Barrier (2.5 ft)

.20 acres planted

300 ft instream habitat (5 weirs)

erosion control

3. Snow Mountain Ranch Barrier Removal, 2005– Cowiche Creek

The project included the removal of the irrigation diversion, moving of irrigation water right to downstream-screened pump diversion, thus establishing trust water for instream flow, development and enhancement of side channel habitat and riparian restoration. The project removed a 1.8 ft. full barrier to fish by removing the irrigation diversion. Breached push up berm to connect old side channels and placement of 15 rootwad structures to enhance and protect channel development. 60 cubic yards of spawning gravel was placed within the stream to increase salmonid spawning success. In addition, a diked and channelized portion of South Fork Cowiche Creek was re-located into its historic channel, adding 140 feet to the length of the channel (an increase of 66% in sinuosity). This increase in sinuosity, coupled with the addition of large woody debris to the system, is expected to reduce the stream gradient through this reach by almost 50%, leading to a decrease in relative transport capacity and increase in gravel retention and spawning habitat suitability. In addition the area was planted extensively with native riparian vegetation. Power was brought in to serve the new pump and site created downstream of the original dam, and a pump rite fish screen was installed. The NYCD has also implemented a weed abatement plan at the property.

Improvements:

- 1.05 cfs screened and metered
- 445.58 AF screened
- Gravity to pump diversion conversion
- Barrier removal (1.8 ft)
- 15 root wads
- 60 cubic yards of spawning gravel
- .35 acres planted
- Weed abatement
- .5 cfs Trusted
- 224.4 AF Trusted

4. Thornton Habitat Project, 2005 – Cowiche Creek

The project included instream habitat improvement, riparian habitat enhancement /protection, and movement of a confined animal feed operation out of the riparian corridor. NYCD/WDFW designed and implemented instream placement of large woody debris and improved a spring for instream habitat. The project established a 7.2-acre riparian buffer through fencing and native species plantings along a 1/3rd mile area of the creek. The project also moved a landowner's cattle feeding operation outside of the riparian area and established buffers.

Improvements:

LWD placement

7.2 acres riparian buffer planted

0.33 RM planted

0.33 RM fenced

5. Garretson Fish Screen and Barrier Removal, 2005 and 2006 – Cowiche Creek

The project addressed a fish migration barrier and implemented a compliant gravity fish screen. NYCD designed and implemented a constructed riffle and rock weir structure to improve passage over existing concrete diversion and replaced flat plate fish screen with a compliant structure. Fish screen will protect 1.35 cfs of diverted water. The delivery was slip lined with pipe to improve delivery losses. A water-measuring device was installed to insure compliance. Planting of native vegetation throughout the project area will improve riparian function.

Improvements:

1.35 cfs screened

572.89 AF screened

Barrier made passable

Instream passage enhancement

.10 acres planted

Metered

6. Lesh Ditch Fish Screen Barrier Removal 2005 and 2006

The project removed and corrected a fish passage barrier in addition to installing a gravity diversion fish screen. The partial fish passage barrier was modified to provide passage for juvenile fish and late season upstream migrating salmonids, increasing fish passage upstream to both the north fork (.87 mile to next barrier/pump) and south fork Ahtanum (2.82 miles to next gravity diversion). The fish screen will protect 2.13 cfs of diverted water from fish entrainment. Planting of native vegetation within the project footprint will improve riparian function and bank stabilization. A water-measuring device was installed to insure compliance.

Improvements:

2.13 cfs screened (gravity)

903.89 AF screened

Barrier made passable

3.69 RM opened

.15 acres planted

Metered

7. Shaw Knox Fish Screening and Off Channel Habitat Improvement Project 2006

The project removed an unscreened gravity diversion and installed a compliant fish screen, fish bypass, water metering device, off-channel habitat improvement for salmonid rearing, and native plant restoration. The Shaw Knox Ditch is located on the left bank of the North Fork Ahtanum Creek above the community of Tampico. The unscreened gravity diversion was one of only a few remaining unscreened diversions in the Ahtanum watershed. The project screened the diversion with a rotary drum fish screen, installed a headgate structure, fish bypass and metering device as well as an inlet structure to a current and constructed side channel and pond for off-channel habitat improvement for salmonids. Final engineering was completed by conservation district engineers, a bid packet was circulated to contractors, and the permitting secured to implement the project in September of 2006. This Project is funded by the Salmon Recovery Funding Board, USFWS, and YTAHP. The project's estimated cost is \$117,000 (engineering through construction).

Improvements:

2.31 cfs screened

980.27 AF screened per year

Grade control/diversion structure (2 weirs)

.5 acres planted

1300 ft. side channel habitat

Fish access to pond

Water Measuring Device

150 ft. of streambank protection and riparian vegetation plantings

8. Diversion 31 Fish Screening Project on the North Fork of Ahtanum Creek 2006

The project removed an unscreened gravity diversion and installed a compliant rotary wiper fish screen, fish bypass pipeline, metering device and native plant restoration. Diversion 31 is a left bank gravity diversion located east of Tampico on the North Fork of Ahtanum Creek. It is the irrigation diversion point for five water right holders for a maximum water right of 1.3 cfs. Engineering was completed by conservation district

engineers. Permitting was secured by NYCD and WDFW staff. The project was completed in November 2006. This Project is funded by the Salmon Recovery Funding Board and YTAHP. The project's estimated cost is \$85,000 (engineering through construction).

Improvements:

1.3 cfs screened

Rock wing wall constructed to maintain diversion

.1 acres planted

3 rootwad installations

Water Measuring Device

150 ft. of streambank protection and riparian vegetation plantings

9. Upper Lust Fish Passage Barrier Removal Project on Cowiche Creek 2006

The project occurred in December of 2006 on the South Fork of Cowiche Creek. The concrete dam and apron were removed to provide passage for adult anadromous salmonids, resident species, and both upstream and downstream passage for juvenile fish. The concrete and ecology block structure was removed and a j-hook weir, in conjunction with 3 rock weirs stair step flows up, and provide fish passage. A future project will remove the need to divert at this point of diversion as the water users will hook into a pressurized system managed by the Yakima Tieton Irrigation District (YTID). This project will benefit this flow limited section of the creek by adding up to 7.915 cfs as instream flow to the system.

1 J-hook vein concentrates flow under an existing bridge

3 rock weirs for fish passage

2 rootwads installed as large woody debris in stream

.1 acres planted and restored

10. Schneider, Green and Wilkinson Habitat Restoration Project on Cowiche Creek 2007

The project was a unique opportunity involving three consecutive private landowners on Cowiche Creek. There were similar resource concerns and objectives among these properties which encompassed nearly 2,000 feet of stream. Rootwads, log vanes, toe logs, and a sweeper log were installed to address severely sloughing streambanks, reduce sedimentation, stabilize streambanks, form pools, and increase habitat diversity. Later this Fall, native vegetation will be planted along both streambanks to improve riparian structure, minimize solar heating, increase root matrices, and provide a future

source of large woody debris for recruitment. 21 single rootwads were installed on the 3 properties, 1 double rootwad, 8 log vein structures providing bank stabilization and fish habitat, 1 sweeper log was installed to direct flow toward the centerline of the stream and to provide fish habitat, 2 hardened cattle access/crossings were constructed, several off channel watering troughs, and 4 large work areas were sloped back and erosion control fabric in conjunction with the log structures were installed.

21 single rootwads

1 double rootwad

8 log vein structures

1 sweeper log

2 hardened stream crossing for cattle

2,000 feet of stream restoration

Riparian vegetation plantings and fencing

11. Boyd Brown Irrigation Improvement, Well Installation and Gravity Diversion Removal Project, Rattlesnake Creek 2007

The Boyd Brown gravity diversion is located on Rattlesnake Creek. The site provides a gravity fed irrigation delivery of 1.5 cfs. The current fish screen is outdated, the screen diameter is too large and the fish bypass is jammed with rocks. The Rattlesnake is a high priority salmonid bearing stream, and the project decreases the likelihood of fish entrainment. The project was made possible by both the North Yakima Conservation District through the YTAHP to correct the fish screening issue and through the NRCS Environmental Quality Incentives Program (EQIP) to promote soil conservation and water efficiency with the ring well installation, drilled well installation and on farm improvements to irrigation systems involving integrated water management. The goal of the project is to remove and abandon the current gravity diversion and fish screen structure on Rattlesnake Creek (this component planned for 2008), changing the point of diversion from Rattlesnake Creek to hydraulic continuity with the Naches River via wells. On farm irrigation improvements decreased the water need by changing from current flood irrigation practices to a sprinkler application.

1 shallow ring well constructed to serve a water user

1 large diameter drilled well to serve a water user

On farm irrigation improvements from flood irrigation to K-Line sprinklers

Gravity Diversion Removal and Abandonment

.1 acres planted

Pump Screens – 23 screens

Pump diversion screens are a conversion from a surface diversion or pump diversion that did not have a complaint fish screen to a pressurized pump screen that meets WDFW and NOAA criteria for fish protection.

Pump Screens – Naches River (2 screens; .135 cfs)

⇒ **Naches Wonderland Campers Association** pump fish screen, 2007 – replacement (.025 cfs)

⇒ **Russell** pump fish screen, 2007 – replacement (.11 cfs)

Pump Screens – Ahtanum Creek (3 screens; 0.84 cfs)

⇒ **Diversion 13** pump fish screen in 2002 – elimination of diversion and installation of a fish pump screen (0.7 cfs)

⇒ **Martin** pump fish screen, 2005 – replacement of noncompliant pump screen with approved Pump-Rite screen (0.04 cfs)

⇒ **Swanson** pump fish screen, 2005 – replacement (0.10 cfs)

Pump Screens – Cowlitz Creek (15 screens; 3.54 cfs)

⇒ **Eller** pump fish screen, 2004 – replacement of noncompliant pump screen with approved Pump-Rite screen (0.13 cfs)

⇒ **St. George** pump fish screen, 2004 – replacement (0.08 cfs)

⇒ **Schneider** pump fish screen, 2004 – replacement (0.19 cfs)

⇒ **Dillon** pump fish screen, 2004 – replacement (0.21 cfs)

⇒ **Dixon** pump fish screen, 2004 – replacement (0.29 cfs)

⇒ **Lamas** pump fish screen, 2005 – replacement (0.08 cfs)

⇒ **Smith** pump fish screen, 2005 – replacement (0.05 cfs)

⇒ **Biggers** pump fish screen, 2006 – replacement (.12 cfs)

⇒ **Green** pump fish screen, 2006 – replacement (.16 cfs)

⇒ **Snow Mountain Ranch** pump fish screen 2006 replacement (1.05 cfs) (Funding from YTAHP, MCRFEG)

⇒ **Christenson** pump fish screen, 2007 – replacement (.78 cfs)

- ⇒ **Borrego** pump fish screen, 2007 – replacement (**.10 cfs**)
- ⇒ **Barnes** pump fish screen, 2007 – replacement (**.14 cfs**)
- ⇒ **McLavey** pump fish screen, 2007 – replacement (**.06 cfs**)
- ⇒ **Peterson** pump fish screen, 2005 – self install/replacement (**.10 cfs**)

Pump Screens – Wenas Creek (2 screens; .59 cfs)

- ⇒ **Hargroves** pump fish screen, 2006 – replacement (**0.39 cfs**)
- ⇒ **Wright** pump fish screen, 2006 – replacement (**0.20 cfs**)

Pump Screens – Wide Hollow Creek (1 screen; 0.75 cfs)

- ⇒ **Weed** pump fish screen, 2005 and 2006 – replacement of noncompliant pump screen with approved Pump-Rite screen (**0.75 cfs**)